

**Whiting Petroleum Corporation (formerly Kodiak Oil & Gas)- Various Well Sites
Partial Compliance Evaluation (PCE)
On-Site Clean Air Act (CAA) Inspections**

Inspection Date: March 30 & 31, 2015

Inspection Report Date: June 11, 2015 FINAL

EPA Representatives: Alexis North
Scott Patefield

Tribal Representatives: Tom Eagle, Carlisle Wells

Company Representatives: None

Inspection Report Prepared By: Alexis North & Scott Patefield

Inspection Report Reviewed By: Cynthia Reynolds

Applicable Rules: Fort Berthold Indian Reservation (Mandan, Hidatsa and Arikara Nation), North Dakota (Fort Berthold FIP)

Overall Inspections' Findings

The EPA detected natural gas emissions using an infrared (IR) camera at the following well pads from oil/water storage tanks in violation of 40 C.F.R. § [49.4165\(b\)\(1\), \(2\) & \(3\)](#):

- TWO SHIELDS BUTTE 14-33-6H, TWO SHIELDS BUTTE 14-33-28H (MOV_2745.mp4)
- SKUNK CREEK 12-7-8-9H3, SKUNK CREEK 12-7-8-9H (MOV-2748.mp4)
- SKUNK CREEK 4-8-17-13H3, SKUNK CREEK 4-8-17-13H, SKUNK CREEK 4-8-17-14H3, SKUNK CREEK 4-8-17-14H (MOV_2749.mp4)
- SKUNK CREEK 2-8-17-14H3, SKUNK CREEK 2-8-17-15H (MOV_2750.mp4)
- MOCCASIN CREEK 13-34-28-1H, MOCCASIN CREEK 13-34-28-2H, MOCCASIN CREEK 13-34-3H, MOCCASIN CREEK 4-3-34-3H3, MOCCASIN CREEK 4-3-34-4H (MOV_2755.mp4, MOV_2756.mp4)

General Source Information

Inspectors scanned the following Whiting Petroleum Corporation formerly Kodiak Oil & Gas (Whiting) well sites' crude and/or water storage tanks and flares from the well site's entrance and/or adjacent road for any detectable emissions using an IR camera. Specifically, inspectors scanned storage tanks for natural gas emissions per 40 C.F.R. § 49.4165(b)(1), (2) & (3) and utility flares per 40 C.F.R. § 49.4165(c).

The EPA evaluated the following Whiting well sites on the Fort Berthold Indian Reservation using an IR camera on March 30, 2015. The well information located in the table below comes from the North Dakota Industrial Commission (NDIC) well index located online at <https://www.dmr.nd.gov/oilgas/>.

Table 1: List of Facilities Inspected March 30, 2015

In/Out	# Tanks	IR emission tanks?	Video ID	IR emission flare?	NDI C #	CurrentWellName	Lat	Long
10:36	10	Yes	MOV_2745.mp4	No	18107	TWO SHIELDS BUTTE 14-33-6H	47.67548	- 102.461
NR					18051	TWO SHIELDS BUTTE 14-33-28H	47.6755	- 102.461
12:09	10	No		No	21700	SKUNK CREEK 13-18-17-16H3	47.63363	- 102.458
12:15					21701	SKUNK CREEK 13-18-17-9H	47.6337	- 102.459
12:21	15	Yes	MOV-2748.mp4	No	22466	SKUNK CREEK 12-7-8-9H3	47.65194	- 102.456
12:29					22467	SKUNK CREEK 12-7-8-9H	47.6519	- 102.456
12:35	6	No		No	21065	SKUNK CREEK 9-2-3-12HS	47.66767	- 102.482
12:40					21064	SKUNK CREEK 9-2-3-5H	47.66774	- 102.482
12:44	10	No		No	22163	SKUNK CREEK 16-2-3-13H3	47.6624	- 102.485
12:50					22162	SKUNK CREEK 16-2-3-13H	47.6624	- 102.485
1:06	20	Yes	MOV_2749.mp4	No	27325	SKUNK CREEK 4-8-17-13H3	47.65968	- 102.563
1:13					27326	SKUNK CREEK 4-8-17-13H	47.65968	- 102.563
					27327	SKUNK CREEK 4-8-17-14H3	47.65968	- 102.562
					19818	SKUNK CREEK 4-8-17-14H	47.65968	- 102.562
1:15	10	Yes	MOV_2750.mp4	No	21224	SKUNK CREEK 2-8-17-14H3	47.65909	- 102.554
1:20					19817	SKUNK CREEK 2-8-17-15H	47.65914	- 102.554

The EPA evaluated the following Whiting well sites on the Fort Berthold Indian Reservation using an IR camera on March 31, 2015.

Table 2: List of Facilities Inspected March 31, 2015

In/Out	# Tanks	IR emissions tanks?	Video ID	IR emissions flare?	FileNo	CurrentWellName	Lat	Long
10:38	23	Yes	MOV_2755.mp4	No	18707	MOCCASIN CREEK 13-34-28-1H	47.59016	- 102.523
10:57			MOV_2756.mp4		18656	MOCCASIN CREEK 13-34-28-2H	47.59022	- 102.524
					18344	MOCCASIN CREEK 13-34-3H	47.59019	- 102.523
					23225	MOCCASIN CREEK 4-3-34-3H3	47.58546	- 102.519
					23224	MOCCASIN CREEK 4-3-34-4H	47.58539	- 102.519
11:05	10	No		No	17847	MOCCASIN CREEK 16-34H	47.58873	- 102.505
11:09					17706	MOCCASIN CREEK 16-34-2H	47.58886	- 102.505
12:30	10	No		No	22462	MOCCASIN CREEK 16-26-27-12H	47.60473	- 102.484
12:38					22465	MOCCASIN CREEK 16-26-27-13H3	47.60464	- 102.484

Fort Berthold FIP Applicability

Based on drilling information reported to the NDIC well index by Whiting, the facilities listed in Tables 1 and 2 were completed after the August 12, 2007 applicability date (per 40 C.F.R. § 49.4161) and are producing from the Bakken Pool (per 40 C.F.R. § 49.4163(a)(1)) and are thus subject to the Fort Berthold FIP.

Closed Vent System Equipment Requirements [§49.4165(b)]

Per 49.4165(b)(1), “Each closed-vent system must route all produced natural gas and natural gas emissions from production and storage operations to the natural gas sales pipeline or the control devices...”. The EPA, using an IR camera, noted and recorded natural gas emissions from production and storage tanks at 5 of the 10 well pads evaluated. Attachment A includes an IR log of each location and IR video details.

APPENDIX A: IR & PHOTO LOGS

IR LOG

COMPANY/ OPERATOR	SITE	FILE DATE	ACTUAL DATE	FRAME #	FORMAT	PHOTO GRAPHER	DISTANCE (yds) Camera to Leak	DESCRIPTION
WHITING OIL AND GAS CORPORATION	TWO SHIELDS BUTTE 14-33-6H	12/31/19 99	3/30/201 5	MOV_27 45	mp4	Spatefield	NR	Tank video
WHITING OIL AND GAS CORPORATION	SKUNK CREEK 12-7-8-9H3	1/1/2000	3/30/201 5	MOV_27 48	mp4	Spatefield	NR	Tank video
WHITING OIL AND GAS CORPORATION	SKUNK CREEK 4- 8-17-13H3	1/1/2000	3/30/201 5	MOV_27 49	mp4	Spatefield	64	Tank video
WHITING OIL AND GAS CORPORATION	SKUNK CREEK 2- 8-17-14H3	1/1/2000	3/30/201 5	MOV_27 50	mp4	Spatefield	65	Tank video
WHITING OIL AND GAS CORPORATION	MOCCASIN CREEK 13-34-28- 1H	4/1/2015	3/31/201 5	MOV_27 55	mp4	Spatefield	NR	Tank video
WHITING OIL AND GAS CORPORATION	MOCCASIN CREEK 13-34-28- 2H	4/1/2015	3/31/201 5	MOV_27 56	mp4	Spatefield	NR	Tank video

PHOTO LOG

File		Date	Time	Photographer	Comments
20150330_	103552	3/30/2015	10:35	A.North	Whiting signage
20150330_	103553	3/30/2015	10:35	A.North	Whiting signage
20150330_	103554	3/30/2015	10:35	A.North	Whiting signage
20150330_	104038	3/30/2015	10:40	A.North	Whiting site
20150330_	104041	3/30/2015	10:40	A.North	Whiting site
20150330_	120912	3/30/2015	12:09	A.North	Whiting signage
20150330_	120918	3/30/2015	12:09	A.North	Whiting site
20150330_	121233	3/30/2015	12:12	A.North	Whiting site
20150330_	121236	3/30/2015	12:12	A.North	Whiting site
20150330_	122253	3/30/2015	12:22	A.North	Whiting site
20150330_	122256	3/30/2015	12:22	A.North	Whiting site
20150330_	122409	3/30/2015	12:24	A.North	Whiting signage
20150330_	122410	3/30/2015	12:24	A.North	Whiting signage
20150330_	122413	3/30/2015	12:24	A.North	Whiting site
20150330_	122415	3/30/2015	12:24	A.North	Whiting site
20150330_	122417	3/30/2015	12:24	A.North	Whiting site
20150330_	123401	3/30/2015	12:34	A.North	Whiting signage
20150330_	123405	3/30/2015	12:34	A.North	Whiting site
20150330_	124431	3/30/2015	12:44	A.North	Whiting site
20150330_	124434	3/30/2015	12:44	A.North	Whiting site
20150330_	124814	3/30/2015	12:48	A.North	Whiting site
20150330_	124904	3/30/2015	12:49	A.North	Whiting signage
20150330_	124910	3/30/2015	12:49	A.North	Whiting signage
20150330_	124911	3/30/2015	12:49	A.North	Whiting signage
20150330_	124946	3/30/2015	12:49	A.North	Whiting signage
20150330_	124947	3/30/2015	12:49	A.North	Whiting signage
20150330_	130157	3/30/2015	1:01	A.North	Whiting signage
20150330_	130158	3/30/2015	1:01	A.North	Whiting signage
20150330_	130431	3/30/2015	1:04	A.North	Whiting signage

20150330_	130437	3/30/2015	1:04	A.North	Whiting site
20150330_	130440	3/30/2015	1:04	A.North	Whiting site
20150330_	130448	3/30/2015	1:04	A.North	Whiting site
20150330_	130456	3/30/2015	1:04	A.North	Whiting site
RIMG	0001	4/1/2015 (Actually 3/31/15)	10:36	A.North	Whiting signage
RIMG	0002	4/1/2015 (Actually 3/31/15)	10:42	A.North	Whiting site
RIMG	0003	4/1/2015 (Actually 3/31/15)	10:53	A.North	Whiting site
RIMG	0004	4/1/2015 (Actually 3/31/15)	10:53	A.North	Whiting site
RIMG	0005	4/1/2015 (Actually 3/31/15)	11:02	A.North	Whiting signage
RIMG	0006	4/1/2015 (Actually 3/31/15)	11:04	A.North	Whiting site
RIMG	0028	4/1/2015 (Actually 3/31/15)	12:28	A.North	Whiting signage
RIMG	0029	4/1/2015 (Actually 3/31/15)	12:28	A.North	Whiting site
RIMG	0030	4/1/2015 (Actually 3/31/15)	12:28	A.North	Whiting site
RIMG	0031	4/1/2015 (Actually 3/31/15)	12:51	A.North	Whiting site
RIMG	0032	4/1/2015 (Actually 3/31/15)	12:51	A.North	Whiting site
RIMG	0033	4/1/2015 (Actually 3/31/15)	12:51	A.North	Whiting site